

**Specifications:**

37 CFR 1.52(b)(5) pages numbered consecutively starting with 1

P 3 paragraph 1 change "process" to --method--

delete "~~such as anthrax and all other equivalents of airborne diseases~~"

P 3 Heading Prior Technology added

P 3 paragraph 2 Prior Technology whole paragraph rewritten to improve readability.

In our search for air handling systems that would have the capability to cover a variety of individuals unique needs, as well as the practicability to operate in a very full household. What we found was a multitude of variations of hepa, of which are allergen, micro, with activated charcoal, with electrostatic charge. Then there seems to be a sub category, hepa prefilters containing one of the following carbon or zeolite and potassium permanganate. Both the hepa and the hepa prefilters are used to remove varying sizes of particulate from the air being drawn through the filter. The claims vary depending on the specific filter or combination of filters. The claims are for removal of pollen, dust, lint, pet dander, mold, bacteria, smoke and smog particles, some even claim to catch particles that can carry viruses.

Our search did not end with hepa's, we also checked into activated charcoal filters, filter with carbon or drum, which basically is a round filter again with carbon. The primary function we found is to absorb gaseous pollutants, especially volatile organic compounds, odors and large particulate.

Also, we found the use of ultraviolet lights in air handling systems. Placement varies but was mostly near where water or moisture may collect. The objective is to break down almost all organic contaminants such as bacteria, micro viral organisms, mold, infectious diseases. The ultraviolet lights also have an added side affect, emitting negative ions, which freshen the air and can make people feel uplifted and lively.

Although it is not used very much we did find an air filtration unit with dryer assembly which was used to decrease humidity in the air stream.

With gas detection and recognition system (Berry) being fairly new technology for the public, we did not find any air filtration systems on the market with the gas detection and recognition option. The same with the radiation detection (Berry) which is readily available for the nuclear industry, but not available to the public at large as of yet. A recirculation pump circulates liquid through a given system and is used in many different mediums.

Ultrasonic transducer, is used to agitate liquid with the use of sound waves at a frequency of 20 kilohertz or higher. The ultrasonic transducer is able to induce particulate release from surfaces in liquid. Subsonic transducer, agitates with sound using low frequency for particulate suspension. Audible and visual alarms are widely available and found in a large variety of products (Berry). As well as air diffusers which are used to prevent laminar air flow, these are also widely available and in innumerable configurations. Automatic safety shut off will shut down an operating system in case of a harmful situation, yet again a system that is used in innumerable products (Berry). We located in our search for an air filtration system many four and five step systems. These systems combined usage of four or five of the following ultraviolet, hepa, carbon drum, carbon post filter, filter with carbon, prefilter, ionizer, collector plates, activated charcoal, negative ion, and ozonation. Each multiple step system was designed to satisfy the multiple causes of pollution in specific work and home environments to offer better air quality.

There seem to be several areas where the currently available air filter systems could use improvement. The multiple step units are almost exclusively stand alone and do not have an option to be installed into current or new air handling systems. As well as the exorbitant cost of replacement filters, which many said units have more than one some as many as three. The added inconvenience of different schedules for filter changes, varying from one month to four years time span. With the systems containing the two or three filters with different clean or change schedules, the question is if the schedule is not adhered to precisely are they still effective? All systems lack an ease of maintenance . Hasama has a belt filter with cleaning tank the filter is

metal this is not a practical application for everyday use for obvious reasons rust, corrosion, pitting from cleaning solutions, lack of flexibility. Coughlin, Young and Hasama have belted filtration methods Young employs the use of a metal filter matrix that gets coated with fibers. The fibers are the filter medium which then get washed off and returned to the tank with the contaminates the presumption is that the fibers and contaminates will separate, with the contaminates settling to the bottom of the tank. Although the tank has an impellor in the tank to keep the fibers from settling this is not realistic. Coughlins belted filter uses water as a means to clean impure gases from the air this system has a spray bar and a tank the tank is used as a return for the spray. This system is dependent on someone to change the water, and the water removing all the impurities in the air. Hasama's belt filter is used for removal of exhaust directly related to cooking, as such the system is used to remove oils and grease contained in the air. This system is more efficient and easier to clean than current systems but is not clear on removal of cleaning liquid or build up of contaminants in cleaning liquid the transducer aids in releasing the contaminants from the filter how long till saturation of liquid. Fleisher's air filtration machine contains multiple discs stacked and motor driven, a wash tank, a drain port, a water fill port and liquid level float. This system has some very serious problems, settling of sediment making it difficult to maintain or drain, the drain at the bottom could easily become clogged with settled sediment. Contamination of disks from wash tank due to lack of disinfection medium. And because Fleisher choose metal as the filter medium we again have the problem of rust and corrosion. Hasama, Himes, Fleisher, Alliger and Hirose all have a variation of wet filters these filters are incomplete they do not contain all needed elements. Hasama and Fleisher are restricted by the material chosen for the filter, the chosen medium is metal when working with a liquid this can create problems such as rust, corrosion, pitting from cleaning solutions and limited porosity. In Hirose, Alliger and Himes case, Himes and Alligers filter has a wash that runs through and to the other side. Neither are clear where the dirty or contaminated wash is supposed to go. The chosen medium is not an issue with Himes, the problem here is particulate. This is a filter for gas and will not function if the particulate will not wash through the filter. Hiroses filter is designed to

remove noxious material and dust, and is also lacking although the filter is dipped into a tank  
there is no element to aid in the release of the particulate that has impinged onto the filter surface.  
This again will eventually cause the filter to clog and become inefficent. Ellner, Diebert and  
Gadgil all implement ultraviolet bulbs Gadgil and Ellner use them in a liquid Gadgil's use is for  
water disinfection, drinking water, in use with ceramic filters and are not located in the water.  
Ellner applies the ultraviolet lights with the ultrasonic transducer as a cleaning apparatus the  
transducer is used to keep the ultraviolet lights free of debris so they will maintain efficiency. This  
is not a air or water filter it is used strictly to keep the ultraviolets at optimum. Diebert uses a four  
step process to filter air, specifically we would like to compare the use of an ultraviolet chamber to  
remove bacteria from air flow. This is good in theory, but due to laminar air flow and rate of air  
flow this ultraviolet chamber is not used effectively. Alliger has a treated surface, the screen is  
metal, the coating is to prevent corrosion and does nothing to increase particulate impingement  
on the screen. Petersen involves the use of a air diffuser, placement is of utmost importance.  
Petersons air diffuser is in front of his filter we feel that our placement after the filter is in this  
situation the best place for the diffuser. Said systems are targeted at very specific problems such  
as allergies, odors, gases or particulate. These systems function very well in that arena but are  
completely lacking in all other areas. Most air filter systems do not offer the option to decrease  
humidity levels or automatic safety shut down, none of the systems offer both no system offers  
toxic and noxious gas and radiation detection and recognition with automatic safety shut down  
and a audible and visual alarm. We are offering all of this in our process as well as a system that  
will self clean and dispose of any particulate, bacteria or germs without the need to be handled.

P 8 paragraph 2 change "~~any and all particulate~~" to any and all airborne particulate

change "~~system~~" to system

P 8 paragraph 3 change "~~with out~~" to without

P 9 paragraph 3 change "~~machine for air filtration that is self cleaning~~" to

self cleaning air filtration machine and a method for using the same

change "~~treatment~~" to treated (high tooth textured and or stickified)

add --to aid in impingement of particulate.--

P 9 paragraph 3 change "~~air filtration that is self cleaning multiple step~~" to --self

cleaning air filtration machine and a method for using the same--

add --passing an airstream to be filtered through a machine for air filtration comprising--

P 10 paragraph 2 change "~~as well as~~" to --,-- change "~~and~~" to --, a-- change "~~which would~~

~~trigger a~~" to --with safety-- change "~~that would drop into place to absorb gases that~~

~~may have leached beyond gas detection system with~~" to --,-- change "~~as well as~~" to

--and-- delete "~~in case of shutdown all followed by~~"

delete "~~at the end of the process~~"

delete "~~of method~~"

P 11 paragraph 2 change "~~Figure 10~~" to --Figure 1--

P 11 paragraph 3 change "~~Figure 11~~" to --Figure 2--

P 11 paragraph 4 change "~~Figure 12~~" to --Figure 3--

P 11 paragraph 5 change "~~Figure 13~~" to --Figure 4-- add --with safety charcoal filter--

P 12 paragraph 2 change "~~Figure 10~~" to --Figure 1-- change "~~filter~~" to --filter.--

P 13 paragraph 1 change "~~suspension~~" to --suspension-- change "~~treated~~" to --treated

(high tooth textured and or stickified).--

P 13 paragraph 2 change "~~Figure 10~~" to --Figure 1--

P 13 paragraph 3 change "~~Figure 11~~" to --Figure 2-- delete "~~again that is where the~~

~~similarities to known filters end~~"

P 14 paragraph 1 add --(high tooth textured and or stickified)--

P 14 paragraph 2 change "~~Figure 12~~" to --Figure 3-- delete "~~compared~~" change "~~that~~

to --which-- change "~~thru~~" to --through-- change "~~applied~~" to --implemented.--

P 14 paragraph 3 change "~~Figures 10, 11 and 12~~" to --Figures 1, 2 and 3--

P 15 paragraph 1 change "~~cleaning~~" to --cleaning.--

P 15 paragraph 2 change "~~Figure 13~~" to --Figure 4-- add --with safety charcoal filter.--

change "~~Figure 13-A~~" to --A-- change "~~Figure 10, 11 and 12~~" to --Figure 1, 2

and 3-- change "~~Figure 13-B~~" to --B-- change "~~trigger~~" to --prompt--

change "~~Figure 13-C~~" to --C-- change "~~would~~" to --will-- change "~~Figure 13-D~~"

to D-- change "~~Figures 10, 11 and 12~~" to --Figures 1, 2 and 3--  
change "~~Figure 13-E~~" to E-- change "~~Figure 13-F ensure~~" to F to  
ensure a-- change "~~Figure 13-G~~" to G-- change "~~various options for~~  
~~the process~~" to --Figures 1,2 and 3 as well as A through G for method--